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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,120	01/16/2004	Hideki Aiba	25925	5042
20529 7590 NATH & ASSOCIATES 112 South West Street Alexandria, VA 22314			EXAMINER WERNER, DAVID N	
			ART UNIT 2621	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/758,120

**Applicant(s)**

AIBA, HIDEKI

**Examiner**

David N. Werner

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20040427.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

### **DETAILED ACTION**

1. This is the First Action on the Merits for US Patent Application 10/758,120.

Currently, claims 1-6 are pending.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

3. The information disclosure statement filed 27 April 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

#### ***Specification***

4. The disclosure is objected to because of the following informalities: on page 1, line 14, the word "STPTE" should be "SMPTE", and on page 3, line 17, the word "vide" should be "video".

Appropriate correction is required.

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Video Data Transmitting/Receiving Method for Transmitting Video in a 4:2:2 Format".

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,438,316 B1 (Henmi et al), in view of US Patent 5,159,438 B1 (Rabii). Henmi et al. teaches a camcorder that transcodes a 4:4:4 video input signal to a different format for recording on a tape. Regarding 3-channel video in 4:4:4 format, in Henmi et al., video is output from a CCD in 4:4:4 with a parallel red channel, green channel, and blue channel (column 3, line 64—column 2). Regarding converting video to a 4:2:2 format, the video received from the CCD is converted to a 4:2:2 format (column 4, line 4). Regarding converting video to two channels, the 4:2:2 video is further converted to a 3:1:1 two-channel signal (column 4, lines 8-14). Regarding mapping the video to an image area defined by the 4:2:2 format, the 4:2:2 signal is transmitted, such as during output from the tape, in the BTA S-004/ITU-R BT.709 standard, which has a horizontal effective area of 1920 of 2200 samples, and a vertical effective area of 1080

of 1125 vertical lines (column 5, lines 16-44). Regarding the serialization of video, the 4:2:2 signal is serialized into two channels, one carrying odd samples, and the other carrying even samples (column 6, lines 58-67). Regarding claim 3, in Henmi et al., the original 4:4:4 signal is in RGB (column 1, lines 43-51), and the transcoded 4:2:2 signal is in YPrPb (column 1, lines 53-60).

Although the video recorder of Henmi et al. transmits video captured in a 4:4:4 format in 4:2:2 format, it does not specify converting two-channel 4:2:2 video back into the 4:4:4 format. However, as previously mentioned, Hanmi et al. encompasses the additional step of converting 3-channel 4:2:2 video to 3:1:1 video for recording. Figure 5 illustrates the system of Hanmi et al. for outputting previously recorded video. Output filter 55 restores the 3:1:1 two-channel video to 4:2:2 video (column 11, lines 54-67), which is output in parallel through output terminal 59.

Rabii teaches a television receiver that converts video aspect ratios and sampling formats. In one embodiment of Rabii, a 4:2:2 input signal is converted to a 4:4:4 output signal (column 4, lines 1-27). This is done by sending the chroma samples of the signal through a pair of latches and multiplexing them together (column 5, lines 1-50). Then, an interpolation step is performed by averaging four successive chroma samples (column 6, lines 5-34). As shown in figure 6A, three-channel 4:4:4 video is output. Further, as shown in figure 3, matrix circuit 32 converts the 4:4:4 Y/R-Y/B-Y video to RGB video (column 3, lines 55-60).

Henmi et al. discloses the claimed invention except for converting 4:2:2 video to 4:4:4 video at a receiving end. Rabii teaches that it was known to incorporate a 4:2:2 to

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4:4:4 converter in a television receiver signal processing system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to convert 4:2:2 signals to 4:4:4 signals, as taught by Rabii, since Rabii states in column 4, lines 12-14 that such a modification would enable simplified a simplified timing system in a video processor, as luma and chroma samples are then processed at the same clock rate.

Claims 4-6 of the present invention encompass the subject matter of claims 1-3 with some additional limitations. Regarding filling the image area with data rows corresponding to scanning lines from a head address of the effective data in claim 4, the BTAS-004/ITU-R BT.709 specifically defines a scanning line with 2200 samples, of which samples 0-1919 are the effective video area, samples 1920-1923 are an EAV area that serves as a placeholder for the end of the effective video area, samples 1924-1925 are a line number LN, samples 1926-1927 are a checksum, samples 1928-2195 encoded the associated sound with the video, and samples 2196-2199 are a SAV area that serves as a placeholder for the start of the effective video area for the next line (column 5, lines 28-44). In addition, of the 1125 vertical lines, lines 1-40, 558-602, and 1121-1125 are the vertical blanking intervals, which serve as the claimed "head address of the effective data" (column 5, lines 40-44). Regarding "cutting out a data row from the transmitted video data for each predetermined pixel" in claim 4, in the reproducing system of Hemni et al., BRR decoder receives a clock signal, and detects the ID signals at the start of each sync block (column 10, lines 55-61). These ID signals correspond

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with the line numbers for each line (column 10, line 65–column 11, line 7). BRR decoder 50 further adds the synchronization signals, and decodes the video signal (column 11, lines 15-18). Regarding claim 6, in Hemni et al., again, the original 4:4:4 signal is in RGB (column 1, lines 43-51), and the transcoded 4:2:2 signal is in YPrPb (column 1, lines 53-60).

8. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henmi et al. in view of Rabii as applied to claims 2 and 5 above, and further in view of US Patent 4,899,220 (Basile et al.). Henmi et al. and Rabii do not teach transmitting video over a plurality of sets of channels if the transcoded video does not fit on one set of channels. Basile et al. teaches a system for decomposing a wide-aspect (HD) picture into a main 4:3 picture (NTSC) and two side pictures. Regarding determining if the number of effective pixels for the original video signal is higher than a certain ratio of the number of pixels for the transmitted video signal, since an HDTV signal has a wider aspect ratio than an SDTV signal, a signal captured in HD known to have more than 2/3 the number of pixels than one to be broadcast in SD. Referring to figure 6 of Basile et al., counter 50 counts the number of pixels since a horizontal synchronization pulse (column 3, lines 64-66). Decoder 52 separates a line into left panel output PL, comprising pixels 1-128; center panel C, comprising pixels 129-800; and right panel PR, comprising the remainder of the line (column 4, lines 1-6). In a variation, the transitions between the center panel and side panels is not abrupt, but gradual over a number of pixels, to produce a smooth transition. Regarding transmitting the video in a high

number of channels if necessary, a multiplexed transmission system is used, in which the luma and chroma samples for the center panel are transmitted separately from the luma and chroma samples from the side panels (column 3, lines 17-26).

Henmi et al., in combination with Rabii, disclose the claimed the invention except for transmitting a video over a plurality of channel sets. Basile et al. discloses that it was known to transmit different portions of a line on different transmission lines, depending on a pixel count for the line. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the separation of a video signal over a plurality of transmission lines, as taught by Basile et al., since Basile et al. states in column 1, lines 15-23 that such a modification would allow both HD televisions and NTSC televisions to receive a common signal.

Furthermore, Basile et al. discloses the claimed invention except for the exact decision of the number of channels over which to transmit video. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further break down a line of a television signal into a large number of panels depending on different criteria, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges, in this case, the threshold for determining how many transmission lines to set a signal over which to transmit, involves only routine skill in the art. See *In re Aller*, 105 UPQ 233.



### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4,523,220 (Adelsen et al.) teaches a system for transmitting an SDTV-HDTV compatible signal by dividing a signal into a standard signal and three difference signals, all transmitted in separate channels. US Patent 4,630,099 (Rzeszewski) teaches a system for transmitting an SDTV-HDTV compatible signal by separating low frequency and high frequency information. US Patent 4,794,447 (Tsinberg) teaches a system for transmitting an SDTV-HDTV compatible signal by dividing a signal into a main channel and an augmentation channel. US Patent 5,280,397 A (Rhodes) teaches a transcoder that converts between an RGB format and a luminance/chrominance format. US Patent 5,412,428 A (Tahara) teaches a system for converting a 4:4:4 signal to a 4:2:0 signal. US Patent 5,712,687 A (Naveen et al.) teaches a system for converting a 4:2:0 signal to a 4:2:2 signal. US Patent 5,867,225 (Keating et al.) teaches an HDTV-SDTV downconverter. US Patent 6,307,592 B1 (Go) teaches a format converter that takes as input a 4:1:1 or 4:2:2 signal and outputs a 4:4:4 signal. US Patent 6,434,197 B1 (Wang et al.) teaches a general-purpose transcoder that converts several input signals of different formats to a combined signal in a common format. US Patent 6,529,344 B1 (Hrusecky) teaches a system for converting a 4:4:4 video to a 4:2:2 video. US Patent 6,570,576 B1 (McIntyre et al.) teaches a system for converting a luminance/chrominance signal to an RGB signal. UK Patent Application Publication 2,115,641 A (Hurst et al.) teaches a system for producing an SDTV-HDTV compatible signal in which high-frequency difference

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signals are inserted in the vertical blanking interval of a standard definition signal. UK Patent Application Publication 2,312,250 A (Steele et al.) teaches a system for converting a 4:2:2 signal to a 4:4:4 signal. "HD Digital Videocassette Recorder SRW-1" is a brochure for a VTR that can input and output 4:4:4 and 4:2:2 signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Werner whose telephone number is (571) 272-9662. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DNW

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TC 2600